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only will buy more, but industry will expand. New jobs, new hope will dawn for 43,000,000 French people, who, since two world wars drained them of man power and money, have stumbled frequently on the long, uphill road to recovery.

France, "Land of Luxury," boasts a beautiful countryside, abundant natural resources, rich soil, a warm, even climate. Nearly half its working population is engaged in agriculture or other rural activities. Wheat is the major crop, but the nation's small farms are widely diversified. The cheese maker of the Pyrenees carries his produce to market by donkey cart. The cowboy of the Camargue cattle country rides herd with his pronged *trident*, used to control stubborn bulls.

French inventiveness has kept industries in step with agriculture to maintain a balanced economy. Frenchmen helped develop turbines, electric transformers, high-tension lines, and a method of shackling mountain watercourses to generate electricity. But the backbone of the industrial system has been the little business—often a family affair run by relatives rather than a professional manager, and frequently hidebound by the traditional methods father and grandfather used.

Since the days of monarchy, the average Frenchman has distrusted and despised taxation. Even today the small businessman is apt to avoid attracting outside capital (since this means making public his company's finances), to shy from spending his own funds openly on expansion or modernization. Like the flower vendor, he is reluctant to part with a 100-franc note, keeping it in his wallet the way the peasant hoards gold pieces in the grandfather clock. Result: It stays out of circulation. Ready money for investments trickles rather than flows. Political instability does not help.

Pierre Mendes-France, energetic, determined French ex-premier, leveled his gunsights at many of these hobbles of a healthy economy. Though the quality of French products has brought fame to the nation, he

Families Live on Wheat-Laden Barges Plying the Pastoral Canal des Ardennes

NATIONAL GEOGRAPHIC PHOTOGRAPHER DAVID S. BOYER

UMI

France Seeks Answer to Industrial Problems

"*Qu'est qu'il y a?* What's the big rush?" asks the sharp-tongued Parisian flower woman of the dapper financier hurrying up the steps of the Bourse.

"Oil," the man breathes as he brushes past. "French oil. We will be rich."

How rich, wonders the old woman, fingering the worn 100-franc note she has hoarded for months. It is worth about 25 cents. Before World War II, 100 francs bought a week's food. Now the note is good for a loaf of bread and perhaps one egg. The fact that France has struck oil for the first time in history leaves the flower vendor cold. "Oil," she cackles, "one cannot eat oil."

The well-dressed investor, meanwhile, has plunged through the doors of the Paris Stock Exchange, feverish with excitement. He has discarded his usual caution in favor of the Texas-style confidence that the French oil boom seems to demand. He buys oil shares, though their prices are rocketing. After all, his government guarantees five percent interest for 12 years if he invests in any of the major French oil companies. For the first time in years, he is willing to take a flyer on the market, speculating on deposits believed to exist in Alsace-Lorraine, Normandy, the Burgundy wine region, and French North Africa.

Wielding Tridents, Cowboys of the Camargue (Rhône Delta) Ride Herd on Some of France's 16,000,000 Cattle

EUGENE L. KAMMERMAN

What the flower woman doesn't realize is that the discovery of "black gold" in France can benefit her, too, by boosting the value of her 100-franc note. The 1,072 barrels that gush every day from the oil wells at Parentis en Born, 45 miles southwest of Bordeaux, will cost the French consumer less than imported oil. If the yield increases to its expected 6,000 barrels a day, oil-fed industries will be able to tag their products with lower prices. If new oil wells come in—like the one near Laco in southern France which is drilling into what is thought to be Europe's richest deposits—that 100-franc note not

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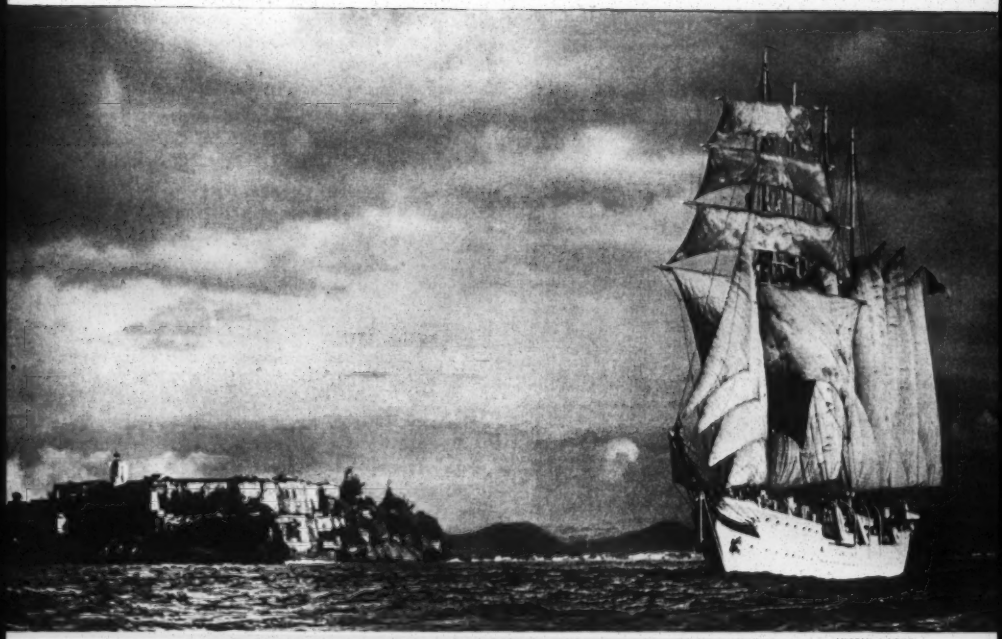


JUSTIN LOCKE

Canvas-Clouded Classroom Teaches Sailing ABC's

How would you like to go to school on a four-master cruising the balmy Caribbean? The lucky Spanish lads aboard the *Juan Sebastián Elcano* (above) are doing just that. As their naval training vessel glides past El Morro, the old fortress guarding the approaches to San Juan, Puerto Rico, they are learning the ropes the time-honored way.

But you'll have to hurry if you want to learn your *A*zimuths, *B*races, and *C*lew lines in a canvas-clouded classroom. This prosaic age of steam is fast outdating windjamming school ships. Yet Spain is not alone in believing that sail best teaches a man the sea; that the vigorous life builds character and resourcefulness, as in days of "iron men and wooden ships."

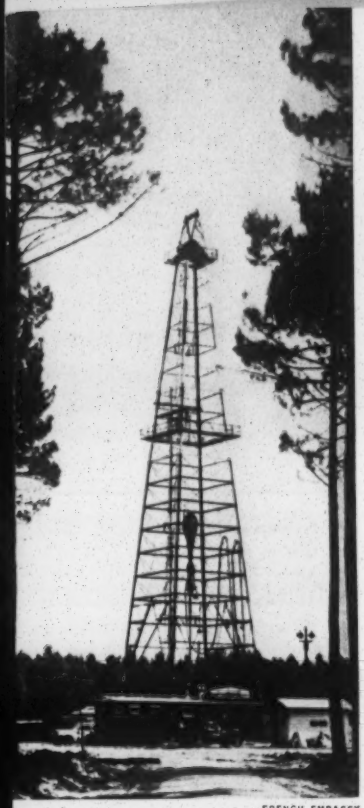
Italy's midshipmen cruise aboard the full-rigged *Amerigo Vespucci.* Portugal, Denmark, Russia, Poland, Japan still offer some training under sail. Recently, Baltimore played host to the three-masted *Statsraad Lehmkuhl,* training ship of Norway's merchant marine. The bark *Eagle* unfurls her 21,350 square feet of sail to serve as floating classroom for the United States Coast Guard Academy at New London, Connecticut.

Every windjammer voyage tests these students. Under sail, it's man—not machinery—against the elements. Sometimes man comes out second, as when Denmark's five-masted school ship *København* went down with all her boys in the Southern Ocean in the winter of 1928-29, leaving no trace.

Until recent years officer candidates in British, German, Danish, or Swedish merchant marine had to serve under sail, though they often had difficulty finding a square-rigger to ship on. Finland's Åland Islands were home to the last fleet of wind ships.

Now school ships are sole heirs to a glorious tradition remindful of Cape Horner days (next page) when old-timers boasted "their blood was Stockholm tar, their hair rope yarn, their fingers marlinespikes."

UMI



FRENCH EMBASSY

Not Texas, But France. Oil Wells Like That at Parentis en Born Boost Confidence in "La Patrie"

felt output was slow, and that transport could be better. Will the new premier do the same?

As it stands, textile, chinaware, and machine-tool plants in the south-central cities of Lyon, Limoges, and Tours depend on coal from Alsace-Lorraine in the northeast. Export wines and perfumes from eastern and southern France must travel across the nation to the ports of Le Havre and Cherbourg.

Seven thousand miles of inland waterways carry bulk freight, supplementing 26,000 miles of railroads and the network of fine highways that covers the country. Mendes-France aimed at locating factories nearer their sources of supply, streamlining their methods. Already, French industrialists and farmers have toured the United States under the auspices of the American government and have brought back ideas which point the way toward modernization.

M. Berlancourt, for example, a foundry manager, was running a plant which lost 2,000,000 francs a month. His workers earned a monthly wage of $50—the average laborer's wage in France at that time, but not enough to provide a satisfactory standard of living. Their work included the backbreaking task of pushing wheelbarrows loaded with iron castings and sand. On his return from America, M. Berlancourt invested in conveyor belts, overhead sand bins, new hand tools. He introduced a bonus system. Now the plant produces 30 percent more than it did. Wages have risen. The poverty that previously marked the community has turned to prosperity.

Multiply what happened in Berlancourt's factory by a thousand to see the impact that overall industrial streamlining is hoped to have on the French standard of living. Then add the new oil discoveries to the picture. Already they have bolstered French confidence in the land, the people, the future.

If, as is expected, the oil wells of France supply eight to ten percent of its needs this year and more in the future, French imports of oil will decrease. Gradually, the foreign-trade ledger will tend to swing closer to a balance. And even the stony face of the embittered old flower vendor outside the Stock Exchange may crease into a smile.

References—France appears on the National Geographic Society's map of Western Europe. Write the Society, Washington 6, D. C., for a map price list. *National Geographic Magazine*, Feb., 1954, "Life in the Land of the Basques"; April, 1952, "Sheep Trek in the French Alps"; June, 1952, "Paris, Home Town of the World"; July, 1951, "France's Past Lives in Languedoc"; GEOGRAPHIC SCHOOL BULLETINS, Nov. 2, 1953, "Saar May Become Europe's Federal District"; Feb. 2, 1953, "French Trains Keep Today's Fastest Schedules." *School and library discount price for Magazine issues a year old or less, 50¢; through 1946, 65¢. Write for prices of earlier issues.*

of topsails and staysails.

Below, their watchmates work at the crossjack brace with decks awash. Soaked through, they may snatch an hour to dry their clothes when off watch, but no sooner are they back on deck than they're wet again.

There was no escaping wetness in the days of sail. The great square-riggers that raced Australian grain to England would bury their main decks in swirling water when they hit the huge rollers of the Roaring Forties. Gray seas would continue to crash aboard until they had rounded storm-swept Cape Horn—Cape Stiff, old salts called it—after five to eight weeks of cold, wet misery.

At all hours of day or night the crew—men and boys—would be routed out of the forecastle to battle with sleet-stiffened sail. Frozen to the marrow, exhausted, they would return to damp, unheated quarters. Their fare: "salt horse," salt pork, pea soup, stockfish, hardtack. The daily lime juice to keep scurvy away gave British mariners the nickname "limeys."

Things of beauty, the oversparred, undermanned wind ships sailed on into the 20th century. But steam made sharp inroads, and two world wars and a fall in freight rates and cargoes finally swept the last merchant square-riggers off the seas. Now most of the world's trade travels in the holds of steamers plying timetable routes and manned by modern crews who know forecastle comforts undreamed of in the days of the Cape Horners.

PHOTOGRAPHS BY ALAN VILLIERS AND (TOP) NORMAN M. MAC NEIL

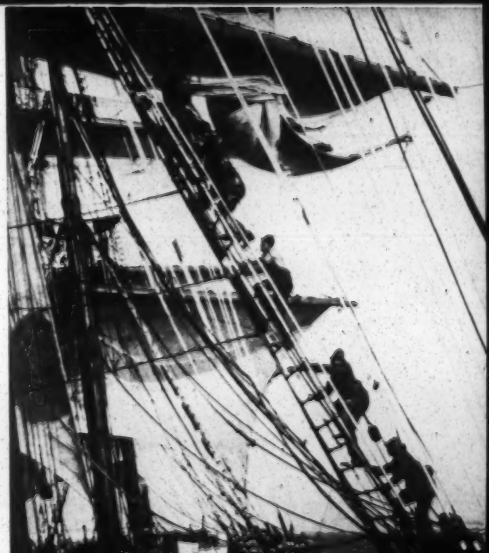
Square-rigger in a Tempest

"All hands aloft and furl it!" The mate's staccato command cuts through the screaming wind as the windjammer heels in the driving sea, a bone in her teeth.

The crew springs to the rigging, up the icy ratlines, out onto a yard lurching high above the boiling waters. One false step means another man lost at sea. Only the slender footrope stands between the sailors and death as they claw at the billowing canvas, hands numb, cracked with cold. Storm winds tug, try to hurl them from their precarious perch as they lie stomach down on the yard and stow the sail in its gaskets.

Royals, topgallants, courses, crossjack, spanker—one sail after another they furl, leaving the plunging ship snug in gale dress of topsails and staysails.

Below, their watchmates work at the cross-



From Great Slave Lake, Larger Than Ontario or Erie, Come Lake Trout and Whitefish for Chicago's Tables. Here Fishermen Clean Their Catch on a Barge in Mid-Lake. A Packer Takes Fillets, Iced and Boxed, to Hay River Whence Trucks Speed Them along Mackenzie Highway to Refrigerator Cars at Peace River. Ice Fishing Continues Through Winter, in Temperatures down to −60° F.

RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

The Peace (foreground) Becomes the Slave at the Lake Athabasca Hub of the Mackenzie's 2,514-Mile-Long System Draining 700,000 Square Miles

Rivers of the World: No. 7

The Mackenzie: Triumph over Handicaps

Some rivers, like the Danube, flow the wrong way for maximum service to man. Others, like the Yukon, waste their substance in largely undeveloped and underpopulated areas. The Mackenzie, North America's second-largest river system, does both. Yet, so fast has it emerged in world importance and so great is its 20th-century promise that the Mackenzie is triumphing over the twin handicaps of an Arctic Ocean mouth and a huge, bleak basin supporting only about 75,000 persons.

In the past 25 years man has lifted the snowy, spruce-stubbled mask and recognized the Mackenzie Basin for what it is—a vast deep freeze of riches to be tapped when world commerce and population pressures dictate.

Those who live there now—from the Tuktoyaktuk walrus hunter to the Jasper National Park ranger taking a snowmobile party over Athabasca Glacier—feel these changes at work. So do heavy-booted and parka-ed men who gather round oil-drum stoves in mining camps and talk sudden wealth. And why not? They have seen it happen. This inhospitable river, with its screamingly monotonous landscape and inhuman climate, has led hardy pioneers to fortunes in furs, gold, oil, fish, radium, and even farm products.

Now the Atomic Age has burst on this region of named and unnamed lakes, of limitless spruce levels, of canoe-wise Indians and Eskimos. The click of the Geiger counter has become the heartbeat of the north.

Where better to start looking for uranium than at Great Bear Lake, whose Port Radium produced uranium for years as the unwanted by-product of radium? Following the mineral-rich edge of the Pre-Cambrian shield in bush-hopping planes, prospectors found thousands of showings that excited their detectors. They soon closed in on the jackpot deposits in the hilly, pleasantly wooded area north of Lake Athabasca.

Overnight Canada added a new name to the world's atomic gazetteer; Uranium City, Saskatchewan, sprang out of the bush—a frontier town of

takes goods around a series of white-water rapids. Fort Smith, the "little Ottawa of the North," sits with its white hospitals and frame government buildings on the high bluff overlooking the wide, swift Slave. From this capital of the Northwest Territories to the Arctic is clear sailing.

Not for navigation but for the fertile land it drains is the Peace noted. In the Peace River Block, surrounding the towns of Peace River, Grande Prairie, and Dawson Creek, 54,000 farmers and townsmen prosper where a few decades ago a handful of trappers coursed the bush. Experts predict a 1,000,000 population.

The Peace River Block is the "midwest of the far north". Farmers go to town on Saturday night along roads running checkerboard fashion through machine-harvested fields. This region is the continuation of North America's central valley that stretches with little variation in elevation from New Orleans to Aklavik.

Two all-year roads probe northward from here—the Alaska Highway and the Mackenzie Highway. Their gravel surfaces hum with traffic, considering their remoteness. But neither rivers nor roads made the Mackenzie Basin what it is today as much as did the airplane. Two- and four-seater bush hoppers eat up mileage in hours that formerly took weeks. Gilbert LaBine discovered radium on Great Bear in 1930 from his plane, starting a new era. Today commercial DC-4's leave Edmonton daily for Fort Smith and Yellowknife. Less frequent schedules reach Uranium City, Hay River, Norman Wells, and even Aklavik.

References—The Mackenzie River is shown on the Society's map of Canada, Alaska & Greenland. *National Geographic Magazine*, Aug., 1931, "On Mackenzie's Trail to the Polar Sea"; GEOGRAPHIC SCHOOL BULLETINS, Jan. 25, 1954, "Arctic Villages Sink in Melting Permafrost."

A Subarctic Midsummer Idyll along the Great Slave Lakefront of Yellowknife

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UMI

Grain Elevators Are the Badges of Importance in Towns of the Peace River Block. This Northern Farm Region Produces a Fast-Maturing Wheat and Fescue, a Grass Grown for Its Seed

RALPH GRAY, NATIONAL GEOGRAPHIC STAFF

mud streets and log buildings that puts its nation fourth among producers of the magical bomb-stuff.

Uranium City and Port Radium typify several far-northern towns which mushroomed from mineral deposits or sprouted along trade routes. Yellowknife, metropolis of the Northwest Territories, mines gold on the north shore of Great Slave Lake. Norman Wells provides gasoline and oil. Pine Point, south of Great Slave, is ready to produce lead and zinc.

Posts or "forts," established by fur traders as long ago as the 1780's, still lie on paths of commerce. Diesel tugs pushing barges of pitchblende from Port Radium to the railhead at Waterways pass Hudson's Bay posts where factors still buy furs from Indians. Planes overhead follow age-old canoe paths to be near water for pontoon landings. In winter, ski-equipped, planes carry their own landing strips as they radiate from Edmonton.

Alberta's capital, Edmonton, fastest-growing city in Canada, is the Mackenzie's "port" just as surely as New Orleans is the Mississippi's. Because it sits with its back on the world, the Mackenzie has always been approached by man through the back door of its inland headwaters. Alexander Mackenzie, discoverer of the river in 1789, saw its farthest-inland mile first—where it flows out of Great Slave Lake. Before him, voyageurs ranging ever westward from Montreal in frail birchbarks had whooped with delight when they found the Clearwater, a west-flowing stream. They realized it announced a vast new river system.

An ambitious fur trader and seeker of continental secrets, Mackenzie hoped his river would prove to be the long-sought Northwest Passage. Upon reaching its delta by canoe from Fort Chipewyan he called it River Disappointment because it did not flow into the Pacific.

Four years later the dauntless Scot ascended the Peace, the great western arm of the Mackenzie system. By superhuman canoeing and portaging he and his nine followers threaded the deep gorge where the Peace, alone among rivers, cuts through the backbone of the Rockies. Mackenzie pushed up the Parsnip then walked over the Coast Range to the Pacific—the first white man to cross North America north of Mexico.

Now, as then, such Mackenzie tributaries as the Peace, Athabasca, and Slave almost eclipse the main stem in importance. The Athabasca-Slave shipping route, connecting Edmonton with its northern hinterland, is busy with barges. During the 12 ice-free weeks, bulk food, heavy mining equipment, and building materials go north; ores come south. The only impediment to navigation appears below Fort Smith where a portage road

MAX SAUER, JR.

The Persian Cat: Thereby Hangs a Tale

"Allah protect us," laments an Iranian newspaper, "we may have to *import* cats!"

Should this happen, it would be like carrying coals to Newcastle, for Iran—or Persia, as it was called—gave the world the fluffy Persian cat whose current popularity threatens to deplete the home supply.

Unlike the short-haired mouser who claims the sacred cats of old Egypt as his ancestors, the Persian's origin is lost in the mists of time. Naturalists think it descended from the Pallas's cat, a wildcat that roams the cold, barren mountains of central Asia and whose close-set ears give it a low-brow look hardly suitable for the progenitor of a feline aristocrat. Regal and privileged, the Persian stalks off with its full share of prizes at cat shows. It is classified in 14 official colors varying from blue to tortoiseshell. The striped tabby or tiger cat is the oldest known pattern.

Egyptian cats first lived with people, but the Persian's admirers consider it without peer. The Persian itself, "graciously waving its tail," obviously agrees. Its lordly manner fosters its reputation for temperament. Leading a sheltered life, it seldom gets its name in the papers for pole climbing or life saving, but occasionally it receives a legacy from a "retainer," and stoops to being photographed by the press.

References—*National Geographic Magazine*, Feb., 1943, "King of Cats and His Court"; Nov., 1938, "The Panther of the Hearth"; GEOGRAPHIC SCHOOL BULLETINS, Jan. 11, 1954, "Big Cats Prowl Shrinking Wilds of U. S."